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Biennial Report, 1932-1934

Pennsylvania Department of
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JOHN A. McSPARRAN, *Secretary of Agriculture*

W. S. HAGAR, *Deputy Secretary*

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Biennial Report, 1932-1934

Pennsylvania is one of the nine leading States in the cash income from the production of agricultural products and one of the two leading States in the consumption of these products. A service agency, such as the Department of Agriculture in a State of the characteristics of Pennsylvania, therefore, has an important two-fold responsibility. It must remove obstacles to economical production and efficient marketing of farm products, supply essential information on the supply of and demand for farm products in this and competing States, promote fair business dealings, and prevent adulteration and misrepresentation of food products in the interest of public health and welfare.

Briefly stated, the Department creates annually a million dollars in revenue, expends three-quarters of a million dollars in indemnity and damage claims, and makes every effort to protect a billion-and-a-half-dollar industry from the onslaught of transmissible animal diseases, plant pests, and unscrupulous business practices. A financial statement will be found on page 39.

Approximately fifty cents out of every dollar appropriated to the Department goes as indemnities to farming people. The revenue created through the enforcement of laws and the collection of license fees, inspection charges, and fines equals the general expense and salary payments (exclusive of indemnities) of the Department.

Many Agencies Cooperate

While numerous details of the work of the Department are discussed in the following pages, the Department wishes to make clear that many agencies have cooperated and are constantly contributing to the success of the work of the Department and to the protection of agriculture in Pennsylvania generally. These agencies include, the Pennsylvania State College and its Extension Service, other Departments of the State Government, farm and closely related organizations, and local governmental officials.

State Egg Laying Contest

The Pennsylvania Official Egg Laying Contest, established in 1931, has established a record as one of the leading standard contests in the entire country. The 1932-1933 contest opened October 1, 1932 with the second largest number of entries of any similar competition in the United States. This contest ranked fifth among all standard contests in average points per bird, sixth in average eggs per bird, and second in highest individual pen record. New world records were made for individual Ancona and New Hampshire Red birds. The contest had an average of 60.6 percent production, 216.62 points per bird, 216.38 eggs per bird, and 24.0 ounce egg weight. The highest pen laid 2,876 eggs making 3015.15 points and the highest individual hen laid 318 eggs in the 357 days making 330.3 points. The 1933-1934 contest opened October 1, 1933 with 96 pens, the largest of any standard competition in any State. This contest was concluded on October 1, 1934

with several new records set. The winning pen laid 2,826 eggs making 2895.50 points and was entered by a Pennsylvania poultryman. Six out of the ten leading pens were selections from Keystone State flocks. A single Comb White Leghorn entered by a Michigan poultryman established a new Pennsylvania contest record by laying 324 eggs, totalling 345.65 points in 365 days. An entry by a Maryland poultryman set a new high mark for egg production with 339 eggs.

BUREAU OF ANIMAL INDUSTRY

T. E. Munce, *Director*

More than two-thirds of the direct cash returns from farm production in Pennsylvania come from the sale of livestock and livestock products, and almost two-thirds of the total farm value of crop production in the Commonwealth is dependent upon livestock and poultry for a market outlet. This essential nature of the livestock industry in the State makes imperative the prevention and control of transmissible diseases common to animals. The responsibility for doing this in co-operation with owners of livestock and poultry is charged to the Bureau of Animal Industry.

State Nears Goal in Bovine Tuberculosis Eradication

The first tuberculin test for the diagnosis of bovine tuberculosis to be made in America, was performed in Pennsylvania by a Pennsylvanian in March 1892. On January 1, 1934, all the cattle in 54 counties had been completely tested and all but four of these counties had been modified accredited, meaning that the disease has been reduced to less than one-half of one percent. About 93 percent of the total cattle population in the Commonwealth were under official T.B. supervision at that time. The 54 completely tested counties contain 1,182 townships. There are 190 tested townships in the remaining 13 counties, making a grand total of 1,372 townships tested out of the 1,570 townships in the State.

Over 1,552,522 T.B. tests were applied during the two-year period from January 1, 1932 to January 1, 1934. Since the establishment of the State Livestock Sanitary Board in 1896, 270,587 T.B. reactors have been removed from herds of cattle, most of which represent dairy herds supplying milk to consumers in Pennsylvania and nearby States.

Progress of Bovine Tuberculosis Eradication (All Tests)
Calendar Years Jan. 1, 1929 to Jan. 1, 1935

Year	Herds Tested	Cattle Tested	Reactors
1929	77,938	676,349	21,704
1930	89,897	761,529	26,057
1931	74,017	730,101	25,491
1932	78,200	697,377	30,494
1933	91,516	845,145	28,841
1934 (Est.)	80,878	802,274	22,527

A number of States including Illinois, Washington, North Carolina, Maine, Michigan, Indiana, Wisconsin, Ohio, Idaho, North Dakota, Nevada, New Hampshire, Utah, Kentucky and West Virginia are now

entirely free of bovine tuberculosis. At the present rate of testing in Pennsylvania, a similar goal should be reached here in the near future.

Millions Paid Farmers as Indemnity

More than \$14,000,000 has been paid as indemnity for tubercular cattle in Pennsylvania during the past 15 years. Of this amount, two-thirds has come from the State and one-third from the Federal Government. Since 1931, the indemnity appropriated by the Pennsylvania General Assembly has averaged approximately \$824,000 a year.

Federal and State Indemnity Paid for Tubercular Cattle in Pennsylvania Fiscal Years June 1, 1929 to June 1, 1935

Year	State Indemnity	Federal Indemnity	Total Indemnity
1929	\$768,146.22	\$555,574.99	\$1,323,721.21
1930	1,227,512.13	885,147.82	2,112,659.95
1931	965,803.04	666,589.95	1,631,392.99
1932	993,372.31	472,693.95	1,466,066.26
1933	654,634.74	384,636.49	1,039,271.23
1934 (Est.)	648,000.00	360,000.00	1,008,000.00

Public's Meat Supply Safeguarded

With the exception of New York, more meat is consumed in Pennsylvania than any other State. There is also more direct selling of meat by farmers and small local butchers to consumers than in any other section of the country. The meat hygiene work of the Bureau, therefore, becomes a big task. This effort includes, first and foremost, ante-mortem and post-mortem inspections by trained veterinarians, and second, the investigation and prosecution of violators of State meat hygiene laws, and the assistance in establishing local meat inspection services.

This work has increased greatly during recent years. The number of carcasses inspected increased from 225,000 in 1929 to 395,000 in 1933; the number of pounds of meat from 7,264,000 to 17,326,134; the number of organs from 692,944 to 10,931,364, and the number of establishments examined from 8,539 to 9,865.

Meat and Carcass Inspection

Year	Estab's. Examined	Car's. Examined		Meats Examined		Ante Mortem Examin- ations
		Passed	Cond.	Passed lbs.	Cond. lbs.	
1929	8,539	224,879	1,146	7,261,031	2,879	3,737,588
1930	7,198	372,054	2,064	43,404,598	14,015	4,687,966
1931	11,319	358,527	2,684	10,894,122	19,804	3,912,777
1932	10,190	342,371	1,260	9,828,517	4,963	2,646,515
1933	9,865	393,502	1,219	17,326,134	13,392	2,723,005
1934 (Est.)	9,540	329,165	1,716	15,920,544	30,258	2,659,724

Records indicate a noticeable improvement in the sanitary conditions of slaughter houses during the past few years. With approximately the same number inspected in 1933 as in 1931, only 80 were found

defective compared with 187 in 1931, and only 55 had to be ordered closed as against 84 two years ago.

Bang Disease Control Makes Progress

The movement in Pennsylvania for the control of Bang disease, which began in 1921 after years of observation and scientific study, was the first systematic effort for the control and eradication of this disease in herds of cattle to be made in America. The method has since been adopted in many other states and foreign countries.

Up to January 1, 1934, a total of 7,549 herds in 66 counties had been tested of which 2,428 were directly signed up under the plan. The number of Bang disease-free certificates issued up to that date was 982. Recent progress in this work is indicated by the fact that the number of herds tested has been increased by 2,212 and 341 additional certificates issued during two years ending January 1, 1934.

Hog Cholera Controlled

During 1932, 80,664 hogs were vaccinated as a prevention of hog cholera. The number decreased to 75,043 in 1933. In other words, during the two-year period, over 150,000 hogs were vaccinated and of this number only 125, or an extremely small fraction of one percent, died after the treatment. During the two-year period, 2,872 cases of hog cholera were reported and in the control of these cases, 597 premises were quarantined. It has been fully demonstrated that where proper precautions are taken, the risks from hog cholera can be practically eliminated as a menace to the swine industry in Pennsylvania. Every possible precaution is taken through specific contract with manufacturers and frequent laboratory tests to make sure that the serum used in the control of hog cholera is a pure and potent product and is made available to farmers at the lowest possible cost.

Summary of Hog Cholera Activity, 1929-1933

Year	Cases	Animals Examined	Deaths before Vacci- nation	Total Vacci- nated	Deaths after Vacci- nation	Premises Quaran- tined
1929	1,166	90,914	110	90,400	271	176
1930	1,040	89,283	120	88,699	109	112
1931	1,731	97,603	121	96,300	57	367
1932	1,405	82,291	127	80,664	68	289
1933	1,467	76,134	115	75,043	57	308

Other Transmissible Diseases

Service is rendered livestock owners in the control of other transmissible diseases. The fact that anthrax, blackleg and hemorrhagic septicemia may be prevented by vaccination, has been stressed in every possible way. Human lives are also subject to anthrax and glanders which make the immediate control of such diseases extremely important. Owners of livestock living on premises on which outbreaks of anthrax, blackleg and hemorrhagic septicemia have occurred are warned annually about vaccinating their animals before they are turned on pasture.

More Interest in Poultry Disease Control

Pennsylvania ranks second in value of eggs produced. Well managed healthy flocks produced a profit during the last biennium. Every effort is being made to assist poultrymen in building up a profitable business by effective disease control methods, by the production of high quality products and by improved grading and better marketing. There is a great demand for assistance in maintaining disease-free flocks. Practical disease control measures are important factors in this program. During the last nine years much attention has been given to the accredited hatchery plan including selection and disease control measures. The Bureau of Markets and the Bureau of Animal Industry cooperate in this work.

All flocks operating under these plans must be tested for Pullorum disease according to the provisions of the "Pennsylvania Method for the Control of Pullorum Disease." This disease is transmitted from the infected laying hens to the chicks through the hatching egg and a high mortality is frequently experienced when eggs are hatched from infected flocks. The plans provide for the elimination of the infected breeders by the use of the tube agglutination test. The growth of Pullorum disease control work is shown by the number of chickens tested annually since 1925, as follows: 1925, 15,177; 1926, 43,630; 1927, 61,442; 1928, 100,340; 1929, 142,200; 1930, 238,229; 1931, 309,880; 1932, 366,787; 1933, 387,204, and 1934, 334,209 (Est.).

Each year shows an increase in the demand for practical and efficient poultry disease control measures. Although fowl pox has been prevalent in several sections of the State, favorable results are being reported following the proper use of good chicken pox vaccine.

Although the incidence of disease among poultry has increased with the proportions of the industry, successful preventive and control measures have assisted in strengthening the poultry industry. Veterinarians employed by the Bureau consult with and assist practicing veterinarians and poultrymen to cope with the diseases prevalent in Pennsylvania. Success in the control and elimination of parasites, coccidiosis, fowl cholera, avian tuberculosis, range paralysis; infectious laryngotracheitis, etc. depends upon the proper application of official regulatory measures and practical disease control plans.

State Institution Herds and Flocks

Pennsylvania has sixteen State institutions maintained wholly by State appropriation. Each of these institutions have farm land under cultivation and maintain livestock and poultry. The Bureau is charged with the prevention, control and eradication of transmissible diseases in the herds and flocks kept at these institutions. The cattle herds have been tuberculin tested and have been free of tuberculosis for many years.

Measures were taken by the Bureau in 1925 to establish the dairy herds as Bang's disease free. This was accomplished with surprisingly economic results. These herds average 9,564 pounds of milk per cow for the year ending May 31, 1930 and 11,801 pounds of milk per cow for the year ending May 31, 1933.

The other livestock and poultry maintained at these institutions are closely supervised for the prevention and control of transmissible

animal and poultry diseases. They are a credit to the Commonwealth and have demonstrated in their respective communities the advisability of establishing and maintaining disease free herds and flocks.

Dog Law Enforcement

The rigid enforcement of the Pennsylvania Dog Law by the Bureau resulted in 483,141 dog licenses being issued in 1933 compared to 294,461 in 1921, when the enforcement was in the hands of county officials exclusively. The number of licenses issued in 1932 was 489,120.

The present Dog Law became effective January 15, 1922, and each year up to 1929 showed a pronounced increase in the number of licenses issued, as well as a decrease in the actual damage caused by dogs. The Pennsylvania Dog Law is a good revenue producer for the Commonwealth, as well as a protection to the public, to property, livestock and poultry. During the eleven years which it has been under the Bureau's supervision, \$7,289,500 has been brought into the State Treasury and almost 25,000 damage claims have been satisfactorily settled, calling for payment of \$791,480 to owners of livestock and poultry for damages by dogs. Other interesting facts are: (1) Over 5,683,900 licenses were issued during this period; (2) Approximately 203,109 stray, uncontrolled dogs were killed, for which local police officers were paid \$396,265; (3) 66,554 sheep were killed and injured, an average of 5,500 sheep annually compared with 21,000 in a recent year in an adjoining State where local enforcement is still in effect; (4) Over 74,580 prosecutions were made for violation of this law.

Investigations by enforcement agents into the stealing and poisoning of dogs have resulted not only in the breaking up of this practice in many parts of the State, but has been the cause of many dogs being recovered by their owners. Dog owners generally recognize that the purchase of a license is good insurance inasmuch as the tag is a real mark of identification and gives the dog protection which a dog formerly did not have.

Dog Law Enforcement Statistics 1929-1934

Year	Number of Dogs Licensed	Dog Law Enforce- ment Revenue	Number of Damage Claims	Amount Paid for Damages
1929	508,747	\$673,256.55	2,038	\$72,162.75
1930	507,641	657,612.65	2,323	70,263.90
1931	503,833	644,214.50	2,262	61,352.28
1932	489,120	610,752.50	2,366	54,989.41
1933	483,141	599,006.66	2,268	32,541.76
1934 (Est.)	525,000	664,400.00	2,100	27,600.00

Since June 1, 1933, the State Dog Law Enforcement agents have assumed, in accordance with an amendment to the Dog Law, the responsibility of appraising damages to livestock and poultry caused by dogs, and supervising the settlement of such damage claims. This change has eliminated the costs of investigation and mileage formerly paid local appraisers which, together with careful appraising by Bureau agents, has resulted in considerable saving to the Commonwealth without additional expenditure.

Control of Rabid Dogs

The Bureau of Animal Industry prevents, controls and eradicates rabies by performing the following services:

(1) By conducting a laboratory examination on the brain of animals that have died or have been destroyed, which were suspected of having been affected with rabies; (2) By reporting the results of the laboratory findings by telegram to all interested parties; (3) By thorough investigation of the outbreak, tracing source of infection and number of animals and persons exposed; (4) By placing under special quarantine all exposed dogs or other animals; (5) By establishing a quarantine on municipalities, townships, and counties, when the disease becomes widespread and condition warrants same; (6) By cooperation with veterinary practitioners, livestock owners, municipal authorities, civic organizations and the Dog Law enforcement officers.

For the period of 1932-1933 there were 391 cases of rabies reported to the Bureau, showing 295 persons and 3,242 animals bitten by rabid and rabid-suspect dogs. This represents a decrease of 228 in number of cases and 144 in number of persons bitten compared with the previous two-year period. In the control of rabies, 3,005 animals on 1,348 premises were quarantined in the two years, also 770 animals were killed for diagnostical purposes and to prevent the spread of this disease.

More Stallions Enrolled

The Bureau is charged with the enforcement of the Stallion Enrollment Law which includes the approval of stallions and jacks for licensure. Supervise inspection of same and furnish information to owners relative to breeding, confirmation and soundness of stallions and jacks licensed to stand for public service. Supervised investigations and inspections of licensed stallions and jacks when conflicting reports of soundness are submitted. Supervised investigations of stallions and jacks stood illegally for public service.

The number of stallions and jacks licensed in 1934 totaled 277 and in 1933, 317, which was the highest in the last decade.

Livestock Dealers Licensed

In accordance with the law passed at the 1931 session of the General Assembly, dealers and brokers in livestock are licensed by the Bureau. The purpose of this regulation is to provide additional means for detecting outbreaks and controlling transmissible diseases of livestock. No fee is charged. Nine hundred and fourteen licenses were issued in 1932, and 855 in 1933.

Those exempted from the provisions of the act include: (1) Any duly incorporated agricultural cooperative association in its dealings with its members; (2) Any person, association, copartnership or corporation who or which does not handle in the aggregate more than one hundred animals in any one license year; (3) Any person, copartnership, association or corporation who or which by dispersal sale in permanently discontinuing the business of dairying, breeding, raising or feeding animals; (4) Any butcher or packer who receives animals exclusively for immediate slaughter; (5) That part of the business of a farmer which consists of buying or receiving animals for grazing and feeding purposes and the sale or disposal of such animals after the grazing and feeding period.

Laboratory Work Increases

The Laboratory Division of the Bureau of Animal Industry is maintained at Summerdale, Lower Allen Township, Cumberland County, Pennsylvania, to investigate into the causes of transmissible animal diseases, including poultry diseases; to reinforce the other divisions of the Bureau by rendering a diagnostic service; to study diseases and laboratory methods of diagnosis in order to perfect better methods of diagnosis; to investigate transmissible diseases from every standpoint; to help devise better methods of control; to conduct experiments on biologies and to prepare biologies for experimental use.

The greater volume of the laboratory activities is from the standpoint of the diagnosis of transmissible diseases which requires special and well-trained professional help and technicians.

In order to render the proper diagnostic service requires that the diagnostic branch of the work be supplemented by investigations and definite regulatory research projects. Definite regulatory projects are necessary in order to form the proper basis for plans of procedure and regulations in the State-wide control of transmissible animal diseases.

At the present time definite projects are being carried out on Johnes's disease, Bang's disease and some miscellaneous undertermined cattle diseases; fowl pox, Pullorum disease, and some undetermined poultry diseases; canine rabies and other canine diseases; and sheep parasites. Besides this numerous investigations have been and are being carried out on miscellaneous diseases of livestock, including poultry, as a result of unusual specimens which are sent to the laboratory for diagnostic purposes.

During the biennium reports have been published on The Comparative Value of Fowl and Pigeon Pox Vaccine; Canine Rabies Experimental Vaccination (Second and Third Reports); Bang's Disease Control Work in State Institution Herds; and numerous investigations covering unusual diseases were completed and reported through routine channels.

During 1932 specimens from 73,068 cattle, 204 horses, 2,084 sheep, 140 swine, 1,432 dogs, 368,661 chickens, 302 turkeys, and 408 other specimens came to the laboratory for examination and tests. During 1933 specimens from 80,254 cattle, 414 horses, 1,399 sheep, 90 swine, 1,643 dogs, 389,539 chickens, 465 turkeys, and 3,006 other specimens were received. In case of examination of dog brains for rabies this work becomes extremely important and a direct service in the saving of human lives.

The number of specimens examined in 1933 exceeded the 1932 total by 30,511 or an increase of approximately seven percent. The growth of this laboratory service since 1926 is indicated by the following figures which give the total specimens examined by calendar years: 1926, 64,180; 1927, 95,379; 1928, 141,604; 1929, 199,956; 1930, 313,698; 1931, 392,246; 1932, 446,299; 1933, 476,810; 1934, 436,248 (Est.).

BUREAU OF FOODS AND CHEMISTRY

James W. Kellogg, *Director*

The Bureau of Foods and Chemistry is charged with the enforcement of the General Food Law, twenty-seven special Food Laws and six so-called Agricultural Laws which regulate the sale of all foods, fertilizers, feeding stuffs, lime products, insecticides and fungicides, oils, paints and naval stores.

The general and special food laws are designed for the protection of the public health and to prevent fraud and deception in the sale of all foods and ingredients entering into the composition of foods. The special food laws fix standards and definitions for many products. The laws regulating the sale of agricultural products are intended to prevent deception, adulteration and misbranding and also fix standards and definitions for various agricultural products. In making effective the provisions of these laws it is necessary to effect registration for various commodities and issue permits and licenses for their sale and the operation of bakeries, bottling establishments, ice cream plants, milk plants and receiving stations, cold storage warehouses and egg opening establishments; to receive the moneys paid for permits, analysis fees and fines, keeping a proper record thereof and transmitting the same to the State Treasurer; to conduct field inspections and investigations and investigate complaints; to inspect bakeries, ice cream plants, bottling plants, milk plants and receiving stations and other licensed places; to institute legal proceedings against persons alleged to have sold foods or agricultural products unlawfully or who may have operated manufacturing plants in violation of the requirements.

In order that the several food and agricultural laws might be systematically and effectively enforced, the Commonwealth is divided into thirteen inspection districts and agents assigned to these districts which consist of from one to eight counties, depending on the population and number of food dispensing places in each. One special agent is assigned to each of these districts except in the Philadelphia District, consisting of five counties where a general agent and three special agents are operating and in the Pittsburgh District to which is assigned a general agent and two special agents.

For the purpose of enforcing the laws regulating the sanitary operation of 825 licensed bottling plants and also the sanitary operation of 800 ice cream plants under the provisions of the amended Ice Cream Law the State is divided into four inspection districts to each of which a special agent is assigned. In that part of these districts which are co-extensive with the Philadelphia and Pittsburgh Districts the activities of these special agents are under the supervision of the general agents. Under the provisions of the Milk Testing Law, which requires the issuing of permits to all milk plants and receiving stations, the licensing of milk testers, weighers and samplers and the supervision of their activities, the State is divided into three inspection districts to each of which is assigned a dairy expert, who in addition to keeping in touch with the licensed plants and persons, investigate all complaints with reference to irregularities in milk testing and payments for milk and cream delivered and give examinations in weighing, sampling and testing milk and cream.

Thousands of Licenses Issued

The Bureau issued approximately 10,000 licenses annually. There has been a sharp decrease in number of oleomargine licenses taken out, but this was offset in 1933 by the new legislation which requires the licensing of bakeries and ice cream plants.

Licenses and Certificates Issued, 1929-1933

Product	1929	1930	1931	1932	1933
Oleomargarine	4,589	6,347	4,506	2,930	3,297
Feeding stuffs	1,316	1,433	1,374	1,217	1,142
Fertilizers	234	244	208	217	199
Lime products	98	104	100	93	91
Insecticides-fungicides	130	156	168	212	193
Milk permits	1,202	1,308	1,209	1,098	981
Milk testers	1,155	1,193	1,159	1,055	1,029
Milk weighers—samplers	536	590	557	498	594
Cold storage	67	74	72	67	66
Egg opening	24	24	20	20	18
Carbonated beverages	877	865	846	828	722
Milk testers' certificates	216	177	172	181	162
Milk weighers' certificates	152	137	93	104	152
Bakery licenses .....	.....	.....	.....	.....	1,111
Ice cream licenses .....	.....	.....	.....	.....	801
Total	10,602	12,652	10,484	8,520	10,557

New Legislation

The 1933 General Assembly passed several laws which increased the scope and responsibility of the Bureau's work. A new Bakery Law was enacted which consolidated all State sanitary inspection with respect to bakeries so that the work can be done by one inspector to the advantage of all parties concerned. A license fee, graduated according to the number of barrels of flour used weekly, was provided. A new Ice Cream Law was placed on the statute books which gives specific and clearcut definitions and standards for ice cream, sherbet and ice; provides for sanitary operation of all ice cream plants; and requires a license fee to be paid by each plant during each calendar year based on the number of gallons produced. The state Feeding Stuffs Law was amended, changing the license fee from a flat \$25 rate for each brand to a graduated rate depending upon tonnage sales. The Fertilizer Law was amended, increasing the minimum allowable amount of available plant food from 14 to 16 percent. The Lime Law was revised to give it more "teeth" and make it possible for farmers to buy lime on a quality basis. The licensing features of the Bakery Law became effective January 1, 1934 although the sanitary inspection work started June 1, 1933. The new Ice Cream Law went into effect July 1, 1933 while the amended Feeding Stuffs, Fertilizer and Lime Laws became effective September 1, 1933.

Accomplishments Unusual and Varied

As the result of a campaign in 1932 in the Eastern district to prevent the sale of misbranded and deficient preserves, three prosecutions ordered against a chain store in Philadelphia were successfully ter-

minated by a payment of \$120 in fines and costs. The successful outcome of these cases resulted in restricting the activities of the New York firms responsible for the sale of these misbranded products.

Several prosecutions ordered in the Western district for the sale of tomato paste, high in mould count and containing an excess of damaged material, were successfully terminated and as a result of a conference held in Philadelphia with representatives of a chain store, responsible for the shipment and retail sales of this paste, full cooperation on the part of the shippers resulted and the inferior quality products were taken off sale.

As a result of conference and correspondence with a Chicago Corporation, after the consulting chemists had agreed that the opaque visking sausage casings made by the company, were unlawful, the company agreed to discontinue the sale of such casings in Pennsylvania after first feeling that the matter should be decided by the Department of Justice. This agreement on the part of the manufacturers will, it is believed, prevent the use of a type of casings for sausages which would make it possible to use inferior meat fillings, the type of which would be concealed to the purchaser.

A large baking company in the Philadelphia district, formerly advertising so-called "Milk Baked" bread, which was made with skimmed milk powder and butter, as a result of conference with our general agent in that district agreed to meet the requirements by discontinuing misleading advertising.

A check-up was made of the quality of canned frozen eggs in storage in the Philadelphia district and 320-30 pound cans of frozen eggs were found to be decomposed and unfit for food and accordingly destroyed by being denatured by kerosene and delivered to a tannery company. The operators of companies together with the persons responsible for the shipment of these eggs fully cooperated with the Department in preventing unlawful sales.

In connection with the sale of black strap feeding molasses to feed mixers in Pennsylvania, several shipments were found to be diluted with water and deficient in sugars, resulting in several prosecutions. The publicity given to these activities has resulted in molasses distributors making shipments meeting the requirements and registering their products with correct guarantees.

A check-up in the northeastern district of the State of the sale of imitation maple syrup for pure syrup resulted in apprehending one of the persons responsible for this form of food violation. As a result of a court trial the defendant was judged guilty and fined \$60 and costs. The successful determination of this case was effective in preventing further unlawful sales of adulterated maple syrup.

On February 13, 1933, a meat case was tried in Westmoreland County Court involving the unlawful sale of ground meat preserved with sulphites in which the defendant was judged guilty. The case was finally terminated in June, the Court sentencing the defendant to pay \$200 fine and costs.

The agents and chemists of the Philadelphia district made a thorough inspection of an egg opening establishment alleged to have been shipping eggs unfit for food to a bakery company and three cans of rotten eggs were discovered and the lots on hand were denatured and disposed of.

During June, an investigation was made of the sale of damaged or salvaged goods in Kingston, Pennsylvania resulting from a fire in a grocery store, which food was supplied to 120 men employed to clear away the wreckage. It was found that each man was paid a day's wage with one bushel basket of miscellaneous salvaged foods including canned and bottled products. These foods were found damaged and unfit for food and the contractors were prosecuted for the unlawful practice.

As a result of investigations for the sale of adulterated butter, three prosecutions were ordered against a creamery in Sayre for the sale of country roll butter which was found to contain excess water to the extent of 23.45 percent, 35.55 percent and 38.95 percent. These cases were terminated by payment of \$100 fine.

On June 8, 1933 in Philadelphia a conference was held with representatives of Jewish citizens for the purpose of working out plans to enforce the provisions of the Kosher Meat Law. It was found that there was a so-called "racket" in Philadelphia in selling non-kosher meat for kosher meat in violation of the law. Arrangements were accordingly agreed upon, whereby, evidence of unlawful sales would be procured by special investigators and prompt action taken against the offenders. A thorough going investigation of sales was made, evidence of unlawful practice secured, and on June 27, 1933 the first prosecutions were ordered for violation of the Kosher Meat Law.

During October, a conference was held with the committee of nine representatives of the Pennsylvania, New Jersey Ice Cream Manufacturers Association for the purpose of considering standards for "Overrun" in ice cream. "Grade A" ice cream and "Home-made" ice cream at which it was agreed that definite standards should be adopted. A committee of two was appointed by the Association to attend a chemists conference to discuss these standards and accordingly on October 6, at a chemists' conference, definitions were proposed and adopted for "Grade A" ice cream, "Grade A" milk and "Grade A" cream and "Home-made" ice cream. The standards for "Overrun" were reviewed and as a result of subsequent conference, it was agreed that 1.8 pounds of total food solids and 4.75 pounds for a gallon of ice cream be adopted.

In Cambria County it was discovered that certain truckers were transporting grade canned foods, some of which were decomposed and unfit for food, and the person responsible for shipment originating in West Virginia was apprehended, prosecuted and paid fines and costs for violation of the law. This action was beneficial in preventing further unlawful practice of this character.

An investigation was made at a large market in Reading as a result of a break in the coils in the refrigerator and it was found that a large quantity of meats had become contaminated with sulphur dioxide gas. Several hundred pounds of this contaminated meat was condemned and voluntarily destroyed by the company.

Summary of Food Law Enforcement, 1929-1933

	1929	1930	1931	1932	1933
MILK					
Samples analyzed	1,929	1,519	1,511	1,545	1,072
Prosecutions	98	77	59	33	34
Percent violations	5.0	5.0	3.9	2.1	3.2
CREAM					
Samples analyzed	541	487	530	528	342
Prosecutions	15	7	10	9	8
Percent violations	2.7	1.4	1.0	1.7	2.3
ICE CREAM					
Samples analyzed	155	183	385	566	1,245
Prosecutions	6	28	31	95	318
Percent violations	3.9	15.3	8.0	16.7	25.5
BUTTER					
Samples analyzed	194	417	1,162	954	599
Prosecutions	30	53	147	78	45
Percent Violations	1.5	1.2	12.6	8.2	7.5
OLEOMARGARINE					
Samples analyzed	32	24	43	5	9
Prosecutions	8	24	14	5	6
Percent violations	25.0	100.0	32.5	100.0	66.7
ALL FOOD PRODUCTS					
Samples analyzed	7,901	10,618	11,322	9,849	8,650
Prosecutions	981	951	1,008	769	1,332
Percent violations	12.4	8.9	8.9	7.8	15.4

General Food Quality High

The general quality of food sold in Pennsylvania is good and remarkably free from adulteration and misbranding. This conclusion is based upon records which show that 18,499 suspicious samples of food products were taken by representatives of the Bureau during the biennial period and of these, only 2,101 or 11.4 percent failed to meet requirements. This proportion is low and no doubt would have been much lower were it not for the fact that many of the cases resulted in special investigations of suspected violations. In the successful prosecution of cases representing violations of the laws enforced by the Bureau, approximately \$35,000 was received or collected during the two-year period as fines and paid into the State Treasury.

Dishonest Milk Dealers Prosecuted

Dairy inspectors of the Bureau have been kept extremely busy during the biennial period check-testing composite milk samples and making investigations of dairy plants throughout the State in order to protect dairymen against dishonesty. These inspectors gave 267 examinations to milk testers, weighers and samplers and made 1,488 inspections and investigations in connection with which 5,146 samples of milk were tested. A number of irregularities were detected by these inspectors. A dairyman at St. Clair was found falsifying records of the Babcock test, prosecuted and ordered to pay rebates amounting to \$1,148.25. A receiving station in York County was discovered

under-reading the butterfat test of milk received from dairymen and the tester, who was also plant manager, was prosecuted. A dairyman at New Castle, another at Ellwood City and a third at Knoxville, were fined for operating milk plants without permits. In another case, the manager and tester of a dairy at Stroudsburg had his license revoked for failure to make correct weight on milk received. Dairy operators at Holmstead and Kulpmont were fined for failure to meet requirements. A dairy was prosecuted at Warren for selling watered milk to school children. In several other cases resulting from milk testers' carelessness rather than dishonesty, action was taken to correct the situation at once either by revoking the license or by seeing that the carelessness was stopped, as shown by further check-ups. This milk plant checking, which is required by law as a function of the Bureau, has returned thousand of dollars to cheated dairymen during the past four years and has saved thousands of other milk producers from being cheated. However, the records indicate that there are only a few unscrupulous and extremely careless dealers and that the great majority are recording the proper tests and making payments accordingly.

Bottling Plant Inspection

There are three laws designed to protect the public health regulating the Carbonated and Still Drink Bottling Industry. These several laws prevent the sale of misbranded and adulterated non-alcoholic beverages, provide for the supervision of all bottling plants, for the registration of the beverage products therein, and also for sanitary procedure in selling beverages at retail. In making effective the provisions of these acts, the State is divided into four inspection districts with a special agent assigned to each. During the two-year period these agents made 11,346 inspections and investigations and in addition to those beverages examined by the regular food agents, collected 1,188 samples. One hundred and forty-eight prosecutions were ordered during the two years where beverages failed to meet the requirements.

There are 780 bottling plants licensed in Pennsylvania. Considerable progress has been made through the year in sanitary conditions and as a result of the splendid cooperation given the Department by the Keystone State Bottlers Protective Association through its members, great improvement has been made in sanitary conditions of procedure and in correct method of labeling. The activities of the special agents in enforcing the requirements of the laws, covering retail sales at such places as circuses, carnivals, county fairs and roadside stands has tended to lessen the possibility of contamination of soft drinks, thus affording increased protection to public health.

Ice Cream Plant Inspection

The new Ice Cream Law already referred to, was the result of the cooperation of the Pennsylvania, New Jersey Ice Cream Manufacturers Association with the Department in revising the law to amplify and improve the ice cream standards by defining ice cream, sherbet and ice and especially to provide for the sanitary operation of ice cream plants, the registration of all frozen products produced therein, the issuing of licenses, and authorizing the Department to adopt rules and regulations for the proper enforcement of the Act. The duties

of inspecting ice cream plants were assigned to the four beverage agents in their respective districts. These agents, immediately commenced the inspection as rapidly as possible and as fast as inspections could be made, and especially in those cases where it was evident from the size and character of the plant that the sanitary conditions could be approved, licenses were issued for the period from July 1, to December 31, 1933. The number of licenses issued was 801 and the amount of fees received was \$7,620.

During August 1933, as a result of the conferences with the ice cream manufacturers, a set of rules and regulations were agreed upon, promulgated by the Secretary of Agriculture, and published with a copy of the new law in pamphlet form of sixteen pages, entitled, "Regulations for Ice Cream Plants." These regulations were supplied to all plants and included special instructions as to sanitary procedure. This is the first instance in Pennsylvania of a provision for the sanitary operation and proper control of ice cream plants and it is anticipated, as shown by the work accomplished during the latter part of the year that a proper enforcement of these new regulations will afford increased protection to the public health by greatly improving sanitary methods of procedure and will tend to improve the quality and proper labeling of ice cream, sherbet and ice sold in the Commonwealth. The provisions which will require registration and proper labeling of frozen products made by firms operating outside of Pennsylvania and selling their products in the Commonwealth will regulate retail sales and provide a means of identification for checking the quality and composition.

Bakery Plant Inspection

The new bakery law, as previously referred to, transferred the inspection of bakeries with respect to sanitary methods of procedure and supervision of employment of persons free from affliction with communicable disease from other State departments to the Department of Agriculture. It provides for specific sanitary methods of procedure for the proper marking of bakery products as to name and character, for the registration of all bakery products sold in the State, and for the obtaining of licenses for operation of bakeries. In an effort to enforce the provisions of this act and looking toward the licensing of bakeries for 1934, the food agents of the Bureau, in their respective districts, were assigned these additional duties in the absence of adequate funds for increased personnel. These agents, therefore, were especially active the latter part of the year in inspecting bakeries and demanding many of those found to be in an insanitary condition to make improvements in order that licenses might be obtained.

In cooperation with the Bakers' Association and as a result of several conferences with special committees, a code of regulations was agreed upon, promulgated by the Secretary of Agriculture and published during October in a twenty page bulletin, entitled, "Regulations for Bakeries" which was supplied to all bakers. These regulations gave detailed methods for sanitary procedure and included a copy of the new law. During the latter part of the year, 1,111 bakery licenses were issued for 1933 activities and it is anticipated that during 1934 there will be at least 2,500 bakeries under inspection and

license. It is anticipated from the result thus far accomplished in improving conditions, that this new act will be of great benefit, not only to the bakeries themselves but to the consuming public.

Cold Storage Foods

Under the provisions of the Cold Storage Law all cold storage warehouses, which are defined as places where foods are stored for a 30-day period or longer, are required to be licensed and under supervision. During 1933 sixty-six licenses were issued compared with 67 in 1932.

Agricultural Products Law Enforcement

In addition to the food laws previously mentioned, the Bureau is also charged with the enforcement of six so-called control laws regulating the sale of certain agricultural products as follows: Commercial Fertilizers, Commercial Feeding Stuffs, Agricultural Lime Products, Insecticides and Fungicides, Paint, Putty and Naval Stores, and Linseed Oil. The methods of enforcing the provisions of these laws are similar to those employed for making effective the requirements of the food laws. The general and special food agents in the thirteen inspection districts are also assigned the duties under these Acts of supervising sales, selecting official samples for analyses and taking legal actions in those cases where prosecutions are required for violations.

The following summary gives the results of the enforcement of the laws relating to agricultural products. The rigid enforcement of these laws saves the farmers thousands of dollars in fraudulent and misrepresented goods:

**Summary of Enforcement of Laws Regulating Sale of
Agricultural Products, 1929-1933**

	1929	1930	1931	1932	1933
FERTILIZERS					
Samples analyzed	2,359	2,236	2,160	1,493	1,487
Brands represented	731	728	709	562	539
Brands registered	1,230	1,221	1,149	1,027	912
Samples deficient	235	284	281	232	219
Proportion deficient (%)	10.0	12.7	13.0	15.5	14.7
FEEDING STUFFS					
Samples analyzed	*1,517	*1,623	*1,868	1,492	1,399
Brands represented	607	628	750	708	657
Brands registered	4,083	4,043	4,180	3,913	3,703
Samples deficient	**95	**75	**164	101	70
Proportion deficient (%)	10.1	8.3	14.4	10.1	8.0
LIME PRODUCTS					
Samples analyzed	*108	*148	*170	*144	*142
Brands represented	51	51	59	50	51
Brands registered	191	187	185	182	177
Samples deficient	**28	**31	**36	**31	**15
Proportion deficient (%)	29.2	27.9	31.0	34.1	16.3
PAINTS, OILS, TURPENTINE, INSECTICIDES AND PUTTY					
Samples analyzed	407	*109	360	*303	*75
Samples adulterated	2	0	3	5	0
Proportion adulterated (%)	0.49	0	0.83	1.6	0

* Includes special samples at \$1.00 per sample.

** Officials samples only.

Chemical Laboratory

For many years a chemical laboratory has been maintained in Harrisburg for the purpose of analyzing specimens of agricultural products in connection with the enforcement of the laws regulating the sale of commercial fertilizers, feeding stuffs, lime products, insecticides, and fungicides, paints, oils, naval stores and miscellaneous materials and official samples of foods purchased in the South Central district, including nine counties. Miscellaneous materials are also examined in cooperation with other Departments and Bureaus of the State Government and Agricultural Associations and also for investigational purposes. The licenses required for the sale of said agricultural products are approved and issued by the laboratory.

During October, 1933, the laboratory was transferred from the Ensinger Building at 2nd and Chestnut Streets to the State owned Publication Building at 10th and Market Streets, where complete new equipment was installed on the third floor with offices, conference room, seven laboratories, grinding room and sampling room provided, with an additional storage room, chemical supply closet and provision made for storage of heavy chemicals. During 1933 there were analyzed at the laboratory 3,347 official samples of fertilizers, feeding stuffs, lime products, insecticides and fungicides and miscellaneous materials and in addition 757 official samples of foods were analyzed. The activities of the laboratory were considerably retarded owing to preparations for moving, installation of equipment and time occupied in transferring equipment and completion of installation.

Consulting Chemists Give Valuable Assistance

During the biennium, as has been customary for many years, regular conferences of the consulting food chemists were held, which were attended by the chairman of the National Food Standards Committee and chemist in charge of cooperation, U. S. Food and Drug Administration, representing the national authorities. Others in attendance included officers of the Department and other Bureaus and representatives of trade organizations and food manufacturers interested in standards and definitions under consideration and for the purpose of presenting evidence and data regarding food manufacturing processes. Many important and uniform methods of procedure for controlling the sale of food products and for identification as to composition were adopted. These included method of labeling vitamin D milk, consideration and preparations of regulations for Ice Cream Plants and Bakeries, formulation of standards for ice cream, sherbet and ice to be included in the revised Ice Cream Law and the formulation of specific standards or definitions for a number of products together with formulating procedure for controlling infested blueberries and food containing arsenic spray residue.

Receipts and Expenditures

The moneys which the Bureau receives are largely fees submitted for payment of licenses, permits and fines resulting from law violations. The fees include those paid for the sale of oleomargine, for the operation of milk plants and receiving stations, bakeries and ice

cream plants, for licenses issued to milk testers, weighers and samplers and for the registration of fertilizers, feeding stuffs, lime products and insecticides. The total amount of moneys from all of these sources in 1933 was \$472,814.36, which was transmitted to the Comptroller for payment to the Department of Revenue and final payment to the State Treasurer, as required. Compared with the amount of moneys, \$474,535.06, received during the corresponding calendar year period of 1932, there was \$1,721.70 less received during 1933, which, in spite of adverse business conditions, shows a favorable condition with respect to receipts.

The moneys provided for conducting the activities of the Bureau are allotted out of the direct appropriation for the biennium to the Department. The amount of moneys actually expended during the biennium was \$312,630.53 while the total receipts for the two years were \$947,349.42.

BUREAU OF MARKETS

George A. Stuart, *Director*

In order to meet the competition of producers of farm products from outside the State, and also to give consumers better quality products, this Bureau has devoted much of its efforts during the past two years to increase the packing of farm products by standard grades under the supervision of State-licensed inspectors and graders. As a result, twelve times as many eggs were packed and sold by grade by producers in the year ending May 31, 1934 as in the year closing May 31, 1932. During the shipping season 1933-1934, 75 percent of the commercial apple crop, 75 percent of the packed peach crop, 98 percent of the commercial grape pack, 60 percent of the cannery tomatoes and 95 percent of the cannery apples were certified for grade compared with 50 percent of the commercial apple crop, 75 percent of the peach crop, 95 percent of the grape crop, 30 percent of the cannery tomatoes and 85 percent of the cannery apples in 1930. Producers and shippers who request such inspection and certification of grade, pay fees which cover the approximate cost thereof.

There has also been an increase in the non-fee producing services of the Bureau. Grades for asparagus, mushrooms, pears, strawberries, tomatoes, sour cherries for manufacture and tomatoes for manufacture of strained products have been established during the past two years. In addition, grades for sweet corn for canning, maple syrup and maple sugar have been suggested. These grades are in addition to those which had been adopted prior to this biennium and have necessitated an increase in grading supervision.

Market Reporting at Four Cities

Market reporting services are established in our four largest markets—Philadelphia, Pittsburgh, Scranton and Wilkes-Barre. At Philadelphia and Pittsburgh reports are issued daily and at Scranton and Wilkes-Barre, every other day, but the services at Scranton and Wilkes-Barre are the only ones maintained entirely by this Bureau. The United States Department of Agriculture bears the major share

of the expenses for the cooperative market news service at Philadelphia and Pittsburgh. Market reporting at Scranton and Wilkes-Barre covers the fruit, vegetable, butter and egg markets, and at Philadelphia and Pittsburgh, the livestock, fruit, vegetables, dairy products and poultry products markets.

Approximately 85 newspapers in Pennsylvania and an equal number in adjoining States have carried the market reports of one or more of our branch offices during the past two years. In addition to this distribution, five radio broadcasting stations disseminate the reports each day.

Fruit and Vegetable Inspection

The demand for the inspection services of fruits and vegetables during the biennium was greater during this biennium than in any similar period since the services were established in 1923. Larger percentages of the commercial apple, peach and grape crops were inspected at shipping points in 1933 than in any previous year, although because of smaller crops, the actual volume inspected in the season beginning June 1, 1933 was considerably less than in the previous year. Shipping point inspections during the year beginning June 1, 1932, however, were the largest on record and for the first time exceeded 4,000 car loads.

Cannery inspection work likewise increased during the biennium and the volume handled during 1932 exceeded 68,000,000 pounds, although in 1933 because of the small apple crop, the volume inspected did not quite equal 47,000,000 pounds. Raw cannery products inspected during this biennium included apples, cherries, grapes, raspberries, snap beans and tomatoes, one more commodity than was handled during the previous biennium. The following table shows the actual volume of raw cannery products examined by our licensed inspectors during the past five crop years:

**Inspection of Fruit and Truck Crops for Manufacture
in Pennsylvania, 1929-1933**

Crop	1929 (pounds)	1930 (pounds)	1931 (pounds)	1932 (pounds)	1933 (pounds)
Totals	13,487,955	43,792,819	53,453,839	68,696,624	46,715,915
Apples	8,956,008	36,453,499	32,114,069	41,792,184	22,982,822
Cherries .....	.....	2,710,000	2,479,124	657,203	307,062
Grapes	1,801,784	3,004,700	5,176,000	3,914,000	3,400,000
Raspberries .....	.....	.....	.....	.....	19,200
Snap beans	373,407	131,675	320,322	112,021	.....
Tomatoes	2,356,756	1,492,945	13,364,324	21,694,216	20,006,876

Because of the establishment of grades for asparagus, mushrooms, pears, strawberries, and tomatoes for juice purposes, it is likely that the cannery inspection work will show a further increase in the next biennium. The method of buying raw cannery products by grade is so popular with canners and growers that no doubt further grades for canning products will have to be established.

The following table shows the growth of the fruit and vegetable

inspection services in the Commonwealth from 1927 to 1933. The inspections at terminals include only the cars inspected at receiving markets in central Pennsylvania. This work is carried on as a Federal service at Philadelphia and Pittsburgh with the State of Pennsylvania cooperating at Harrisburg, Wilkes-Barre and Scranton. Inspection in other cities of the State are handled, whenever possible, from one of the five cities in which offices are maintained.

Fruit and Vegetable Inspection Services, 1928-1934

Year	Shipping-Point (Cars)	Terminal (Cars)	Cannery Raw Products (Pounds)
1928	1,766	320	8,842,000
1929	2,278	322	13,487,955
1930	2,975	274	43,792,819
1931	3,987	386	53,453,839
1932	4,002	344	68,696,624
1933	2,025	174	46,715,915
1934 (Est.)	4,500		73,451,188

When considering the percentage of Pennsylvania inspected produce which was placed in the U. S. No. 1 or Fancy Grades, at shipping point, peaches have shown the best quality, ranging from 85 to 95 percent in the higher grades and white potatoes have shown the poorest quality, ranging from 35 to 70 percent.

Certain defects caused inspected apples, peaches, and potatoes, to grade lower than U. S. No. 1 during the past two seasons. Mechanical injuries were mentioned on 42 percent of the apple certificates and on 20 to 25 percent of the peach and potato certificates. Greater care in handling these crops through the harvesting and packing operations would eliminate much of this waste. Better cultural methods and more thorough spraying will help to eliminate many of the other defects such as scab, scale, worm injury, decay and stings.

Poultry Breed Improvement

Because of the importance of the poultry industry, several poultry marketing projects have been established by the Bureau. One of these is the breed improvement work. Since its establishment in 1924, this work has steadily grown and has done much to standardize baby chicks and improve the size of eggs produced. The number of birds involved has increased from 3,100 in 1924 to 250,000 in 1933, and the work has spread from two to thirty-seven counties.

Flocks and hatcheries are classified as Supervised, Certified, Record of Performance and Accredited. All breeding birds are individually examined for health, vigor, type and production, by a representative of the Bureau and placed in either of the first three classifications, depending on the qualifications exhibited. These same birds may be blood tested by the Bureau of Animal Industry for pullorum disease and after two consecutive clean tests, are rated as Accredited. Each flock and hatchery receives a certificate of classification for both the Supervised and the Certified grades. An individual certificate is issued for each bird, entered in Record of Performance, which meets the minimum production requirements of 200 or more eggs for a pullet and 180 or more eggs for a hen, with average weight of 24 ounces per dozen.

The following table indicates the progress which has been made in the breed improvement work since 1928. The number of birds handled shows a steady increase up to and including 1930. Since then there has been a slight decrease because of the business depression. Definite improvement is indicated in the lower percent of birds reacting to the pullorum test and the increased number of Accredited flocks. The Bureaus standardization program has improved the quality of baby chicks produced in Pennsylvania and has greatly reduced the misrepresentation of quality heretofore experienced.

Breed Improvement Work Including Supervision, Certification, Accreditation, and Record of Performance of Poultry Flocks, 1929-1933

	1929	1930	1931	1932	1933
Birds handled	162,653	278,190	263,780	235,826	249,394
Birds approved	134,868	227,232	208,617	189,619	204,577
Birds banded	104,384	173,517	156,603	139,632	157,653
Birds culled	27,849	50,958	55,175	46,207	44,817
Percent culled	17.10	18.32	20.90	19.8	17.08
Birds blood tested	108,202	164,228	309,880	366,787	387,448
Percent reactors	6.03	6.70	5.30	4.8	4.4
Flock under supervision	343	547	531	369	336
Hatcheries under supervision ...	51	72	86	78	83
Counties where work was done ..	32	40	37	41	43
Accredited flocks	7	8	20	40	56
Accredited hatcheries	5	5	10	9	13
R. O. P. birds	3,871	6,605	6,701	4,187	4,275
Flocks entered	11	18	18	18	17
Certificates issued	890	1,256	1,268	1,187	1,095
Auction markets (egg) .....	.....	.....	1	5	6

Egg Marketing

To meet the increased demand for graded eggs and the strong competition from the middle and far west, standards for eggs were adopted in 1931. These standards were immediately put into effect at an auction market in Bucks County. Since 1931, five other auctions have been established and all are using the standard adopted. A total of 16 inspectors have been trained and licensed by the Bureau. For 1933, a total of 99,781 cases or 2,993,430 dozen of eggs were sold by the six markets. The prices exceeded New York prices by 3.56 cents per dozen making a total additional return to the producers of approximately \$105,000.00. The auction markets are serving 1,512 producers and have permitted 1,276 different buyers to secure quality eggs. The auction markets' increase in price has effected every surrounding locality to an unmeasurable degree. The influence of quality production has effected the entire Commonwealth to the extent that general improvement is definitely noted. This improvement has overcome the generally experienced bad reputation previously encountered by producers in Pennsylvania.

Terminal Records on Wheat

When the United States practically lost its export market for wheat in 1933, there was little demand for Pennsylvania wheat on the terminal markets. Therefore, there were so few cars arriving at Philadelphia and Baltimore and graded by licensed inspectors that the

tabulations of grading factors causing a reduction in price on inspected cars had to be discontinued in 1933. However, information received from Pennsylvania mills, which purchased most of our 1933 wheat, shows that smut and angoumois grain moth infestation is again on the increase, indicating that wheat improvement work should be continued. The following table shows the percentage of cars which were reduced in grade because of different factors at Philadelphia and Baltimore during the years 1929 to 1932.

Grading Factors Causing Reduction in Price of Pennsylvania Wheat at Terminal Markets. Crop Years 1929-1932

Year	Cars Shipped	Percentage of Cars Reduced in Grade Because of					
		Angoumois Moth	Excess Moisture	Garlic	Cockle	Weight per Bushel	Smut
		P. ct.	P. ct.	P. ct.	P. ct.	P. ct.	P. ct.
1929	338	15.5	75.0	83.6	.5	20.0	12.0
1930	747	30.3	4.4	66.4	.5	49.4	3.3
1931	939	12.2	17.0	76.0	2.0	6.6	5.7
1932	158	50.0	21.0	73.0	1.0	33.0	17.7

Increasing Demand for Pennsylvania Flour

By authorization of the Governor, the State institutions are now required to purchase and use a fifty-fifty blend of flour, 50 percent of which is made from Pennsylvania-grown wheat and 50 percent made from Spring wheat imported into the State. This blend of flour has given such good results that a number of commercial bakeries are now using large quantities of flour milled from Pennsylvania wheat, thus opening a new market for wheat grown on Pennsylvania farms and a new market for the milling industry.

One mill alone reports the sale of 12,000 barrels of the 50-50 blend of flour to State institutions and commercial bakeries, which represents the use of 28,000 bushels of Pennsylvania-grown wheat. Figuring twenty-bushels per acre, it would require 1,400 acres of ground to produce this quantity.

Some of our mills have developed a pretzel flour and are now selling flour to pretzel manufacturers who at one time purchased their flour from the western states.

Public Markets

The number of farmers' markets in Pennsylvania has continued to grow, despite the trend downward in several other states. One hundred and thirty-four farmers' markets were in operation in this State in the summer of 1934 compared with 130 in 1932. Of the total number operating in 1934, seventy were enclosed markets, commonly referred to as market houses, and sixty-four were curb or open air markets.

During the two-year period, 1932-1934, this Bureau gave assistance to four groups in establishing new enclosed markets at Hanover, Pottsville, Hazleton and Kingston. This help consisted principally of suggestions for the market design, layout of stands, types of refrigeration, methods of heating and lighting, plans of finance and rental charges.

Four meetings with market managers from all sections of the State were held to discuss problems of operation and means of improving existing enclosed markets. As a result of these meetings, several markets have made improvements to their physical facilities and developed better merchandizing methods among their farmer and dealer tenants.

More Farmers Cooperate in Marketing and Purchasing

During the two years, 1932-1934, more farmers in Pennsylvania participated in the cooperative marketing of farm products and the purchasing of farm supplies than ever before, and at the close of 1933, 58,310 farmers were members of incorporated agricultural cooperative associations. This represented a gain of more than 11 percent over the total cooperative membership of 48,436 at the close of the calendar year 1929.

Despite declines in prices during 1932 and 1933, and the severity of the business depression during those years, the volume of products handled by agricultural cooperative associations was nearly as large as in 1931, when a record tonnage of products was handled by such associations. The tonnage of milk handled by cooperatives in 1933 was about 16 percent smaller than in 1931, and the volume of fruits and vegetables declined, but all other products handled by cooperatives were actually greater in volume in 1931. Figures based on the actual reports received from incorporated agricultural cooperatives show that they marketed 560,769 tons of milk, 16,885 tons of fruits and vegetables, 2,298,237 dozen of eggs, 11,943 head of livestock and 305,486 pounds of wool in 1933 as compared with 668,761 tons of milk, 20,663 tons of fruits and vegetables, 5,616 head of livestock, 84,610 dozen of eggs and 188,035 pounds of wool during 1931. Cooperative purchasing associations handled 226,326 tons of feeds, fertilizers and seeds in 1933 as compared with 219,907 tons during 1931. The value of commodities handled by farmers' cooperatives, however, declined sharply and the figures in the following table show that the value of agricultural cooperative business in 1933 was not quite one-half of that in 1929. Declining prices principally account for this loss in value:

**Value of Commodities Sold Through Farmers' Cooperative Corporations,
1929-1933**

Commodity	1929	1930	1931	1932	1933
Milk and milk products	\$42,137,670	\$40,941,225	\$32,620,900	\$22,968,218	\$17,603,930
Fruits and vegetables ..	3,277,751	3,279,515	2,541,462	1,789,101	2,180,000
Livestock	260,029	203,058	235,691	168,366	139,031
Wool	50,283	60,019	34,097	32,905	89,936
Eggs .....	.....	.....	85,000	229,363	546,991
Farm supplies	8,802,142	9,497,427	7,255,905	5,648,666	6,357,058
Total	\$54,527,675	\$53,981,244	\$42,773,055	\$30,836,619	\$26,916,946

The figures on volume and on membership show that the cooperative form of business organization is increasing in value to Pennsylvania producers and that cooperatives are performing marketing and buying services for a steadily growing number of farmers. During the two

year period, 1932-1934, this Bureau assisted 17 new associations in the preparation of marketing agreements, by-laws, financing plans and operating programs. It also gave assistance to 96 established co-operatives in the solution of management, financing, marketing and taxation problems.

Market Reviews Used by Trade

Weekly reviews of the hay, grain, feed and flour markets and periodical reviews of the peach, apple, grape, potato, tobacco, poultry and egg markets have been issued during each of the last two years. These were extensively used by producers, shippers, dealers and others particularly interested in these commodities and were published by most newspapers in the counties where these products are widely produced.

Complaints Against Dealers

During the past two years, 122 complaints from producers against dealers and commission merchants were received and investigated. Most of the complaints were against poultry dealers although a sizable number involved shipments of fruits and vegetables, and the majority of them alleged failure of the receiver to make returns. In one-third of the cases, the Bureau was able to bring the receiver and producer together and fair settlements were affected. In the remainder of cases, the Bureau could not bring the parties together and hence was obliged to advise the producers to bring suit for recovery of the sums due them.

BUREAU OF PLANT INDUSTRY

R. H. Bell, *Director*

The general character of this Bureau's activities has continued along the same general lines as for the past several bienniums. However, a number of important changes in program had to be made to conform to a reduced general budget and to care for new problems which have arisen during the past two years. Important projects affected by retrenchment due to shortage of funds were; apiary inspection, peach yellows inspection, corn borer scouting, cedar rust control, storage pest control and general pest surveys. Projects requiring less attention because of changed conditions were Japanese beetle and corn borer quarantine activities. New projects and others demanding increased attention were: gipsy moth, potato wart, nursery inspection, certification of seeds and plants, and seed regulation. Several additional new pests such as chinch bug, blueberry maggot, etc., also put in their appearance and demanded attention.

A number of adjustments were found necessary or advisable in the Bureau's field office set-up, the most important of which were: closing of the laboratory at Chambersburg and transferring of the fruit moth parasite work to Harrisburg; closing of the cooperative Japanese beetle headquarters at Oakmont and shifting same to Philadelphia and Harrisburg; establishment of headquarters for gipsy moth work at Wilkes-Barre; and shifting the Ebensburg headquarters to Hollidaysburg. All other field offices remain as previously.

The major projects conducted during the period of this report are briefly discussed in the following pages. Statistical data are in most instances for the calendar years 1932 and 1933.

ENTOMOLOGY

The various regulatory activities of the Bureau and numerous surveys requested and found necessary have resulted in increased demand for advice to citizens of the State concerning insects affecting man and domestic animals; household and stored products; greenhouse, garden and field crops; and orchards, shade and forest trees. The usual co-operation has been given to other State agencies in insect determination and control.

Insect Collection

Our insect collection, which is outstanding on account of its completeness and arrangement, is used extensively by our entomologists in identification work. It is invaluable in the enumeration, classification and correlation of the insect pests of the State in regard to distribution, time of preponderance and in regulatory control. During the years 1932 and 1933, our entomologists have made over 15,000 identifications.

Mill Fumigation

No demonstrations were held during 1932 and 1933 although persons requesting information through correspondence or personal appeal were advised and instructed. The past demonstrations have trained the leading millers in the use of hydrocyanic acid gas fumigation and very few requests for this service have been filed with the Bureau from them.

Oriental Fruit Moth

During the spring and summer of 1932, over 4,000,000 and during 1933, 11,000,000 fruit moth parasites (*Trichogramma* sp.) were reared and liberated in Pennsylvania peach orchards. In 1933, the distribution was: Franklin County, four locations; Lancaster County, two locations; Berks County, one location; Adams County, one location; Juniata County, one location; and Erie County, four locations. Bagworm eggs were used as the host for all the rearing work in the laboratory and proved much superior to grain moth formerly used. These eggs were collected early in the spring from various sources and stored in a refrigerator where they were held in perfect condition for the summer's work. A stock supply of parasites is maintained through the winter for work the following season.

It is hoped that a careful survey can be made of the above mentioned orchards in 1934 to determine the abundance of these parasites in comparison with orchards in the same vicinity where no parasites have been liberated.

Other Parasites of the Oriental Fruit Moth. Additional work has been done in cooperation with the Bureau of Entomology, United States Department of Agriculture consisting of liberation of several species of parasites, and the collection of material in an attempt to determine their establishment in the State. Collections of material

were made in Adams, Allegheny, Beaver, Erie, Franklin, Juniata, Lebanon, Washington and York Counties during May, June and July of 1933. In these collections, eleven different species of parasites were recovered. The two outstanding ones were *Glypta rufiscutellaria* and *Diocetes obliteratus*, both being native species. *Macrocentrus ancylivorus*, a larval parasite that was liberated in 1932, was recovered in Adams, Erie, Juniata and York Counties. Twenty-five colonies were liberated in 1933 including seven species from Japan and one from Australia. These liberations were made in Adams, Franklin and York Counties.

Japanese Beetle

The United States Department of Agriculture continued to assume a large portion of the financial and supervisory load incident to the Japanese beetle quarantine and control work. The quarantine line was moved westward in 1933 to include all of the State except Erie, Crawford, Mercer, Warren, Venango, Forest and portions of Clarion and Butler Counties. Scouting in 1932 showed the establishment of the beetle at many points outside of the then quarantined area. Only one place in the above named counties is known to be infested—the city of Erie—and because of the importance of the fruit growing industry in Erie County it was decided to continue the work of eradication through soil treatment, spraying and use of traps started in that city in 1931.

During 1933, over 4,000 pounds of coated arsenate of lead were used in spraying trees and shrubbery in thirty-four residential blocks in Erie. Powdered arsenate of lead (over 55,000 pounds) was used in soil treatment of nearly fifty-seven acres in eighteen city blocks. The water used in spraying and soil treatment was furnished gratis by the Erie Water Works.

One thousand two hundred and eighty traps were placed in the city in 1933. These traps caught a total of 167 beetles, ten coming from the area treated in 1932 and 157 from outside this area. Traps were also placed in Greenville, Sharon, Franklin, Meadville, Union City, Titusville, Corry and Warren. One beetle was captured in Warren but it is not believed that a definite infestation exists at that point. Twenty-four traps were placed in Gettysburg (1933) mainly in the areas treated several years ago and in which an infestation had been discovered. Twenty-five beetles were recovered in 1933 in comparison to several hundred the year the infestation was found. Twenty traps placed in Harrisburg, in 1933 captured 382,000 beetles indicating perhaps the heaviest infestation in the State outside the Philadelphia area.

Certification of Products. Inspection and certification of nursery stock, other plants, farm products and various other materials for movement to outside markets continues to be an important feature of the Japanese beetle work. Normally our nurserymen depend on outside markets for approximately thirty percent of their annual sales. As a result millions of plants are certified every year. A large volume of farm products, chiefly on the Philadelphia and Pittsburgh markets, is also certified for the same reason.

Gipsy Moth Eradication

Gipsy moth eradication work was undertaken in cooperation with the Department of Forests and Waters and the United States Department of Agriculture. The Federal Department has made substantial contributions of funds, supervision and equipment. The original infestation in Pennsylvania was found July 26, 1932 at Inkerman and the area has since been extended to include several townships in Luzerne, Carbon, Monroe, Wayne and Lackawanna Counties. At the suggestion of the Federal Department a quarantine was established March 1933 regulating the movement of certain material from the known area of infestation. Since the area affected was comparatively small and constituted the only infestation west of the Hudson River, the Federal Department strongly recommended that eradication of the pest be immediately undertaken.

Preliminary eradication work was started October, 1932, and a more extensive program on January 16, 1933. The spraying of infested woodland, town and city trees, shrubs, etc. was started on May 29, 1933, using twenty-five Federal sprayers, nineteen of which did the actual spraying and six the follow-up washing. Prior to the time of spraying a total of 6,008 permits were obtained from property owners where spraying was to be done. In only thirty-eight cases was it found necessary to serve a "Notice of Treatment" where owners would not sign a permit. At local infestations 25,826 burlap tree bands were applied and approximately 54,500 larvae and 2,597 pupae were destroyed. During the 1933 season, 1,823 assembling cages for capturing male moths were placed in fifty-three townships in seven counties. This serves as a basis of later scouting and control work in outlying areas.

Up to May 12, 1934, over 2,300 acres were chopped and cleaned of all worthless tree and plant growth, and 1,116 acres cleaned of sprout growth in order to remove breeding environment and to facilitate spraying of worth while trees. From July 1932 to May 1934, 2,328,795 egg masses were destroyed by creosoting or otherwise.

With the exception of a small supervisory force of Federal employes, the entire personnel for this work has been recruited equally through the relief boards of Luzerne and Lackawanna Counties with a total of approximately 1,500 men given employment for varying periods of time.

European Corn Borer

Due to lack of funds both Federal and State corn borer quarantines were revoked in 1932. As a result, thirty States have placed quarantines against corn and other hosts of the corn borer shipped from Pennsylvania. Two of these states have established complete embargoes, while the others will admit affected products, other than corn, when certified by Federal or State inspectors.

A fairly complete survey was made in 1932 covering most of the counties of Pennsylvania in which borers had previously been found in appreciable numbers. Facilities were not available to continue this survey in 1933 so that only a very sketchy check could be made in a few of the more heavily infested counties. However, no definite tendency toward building up of borer population was found during either of these two years. Farmers appear to be following the clean cultural

methods demonstrated during the enforced clean-up period, 1927-1931, with the result that there are fewer borers now in the northwestern counties than in 1926.

Nursery Insects

Nursery pests are recognized as a major problem in general pest control because of the constant risk of spread through movement of nursery stock. Of the sixty or more insects recognized as nursery pests, the following have been of special interest the last few years: *Juniper Scale*, *Pine Needle Scale*, *Euonymus Scale*, *Oyster Shell Scale* and *Boxwood Leaf Miner*. Considerable damage was noticed in the western nurseries due to the feeding of lace bugs (Tingidae) on wild cherry, Japanese flowering cherry, cotoneaster, crataegus, sycamore, rhododendron, azalea, kalmia, butternut, and hardy aster. Juniper webworms were also on the increase in the western half of the State.

New and Unusual Insects

During 1933, four insects (one new) were present in numbers to cause loss to growers.

The Chinch Bug was injurious in two places in 1932 and appeared in harmful numbers in Columbia, Perry, Snyder, Dauphin and Adams Counties in 1933. Damage was confined to corn and other grasses. Small patches of sweet corn suffered the heaviest loss.

The European Elm Bark Beetle (*Scolytus multistriatus* Marsh) has been found in several nurseries in the State and if permanently established may prove a formidable pest to elm growers. This insect is held responsible for the spread of the Dutch elm disease in this country.

The Blueberry Maggot (*Rhagoletis pomonella* Walsh) has been causing increasing concern to the blueberry industry in the northeastern part of Pennsylvania. In areas where blueberries are grown as a crop (as in Maine) the application of a poison dust is recommended by Federal agencies. Under Pennsylvania conditions this control measure is not practical except on a few restricted areas. Periodic burning-over of the areas is also advised. This could scarcely be recommended in Pennsylvania except under the direct control of experienced foresters. Probably the safest practices are the careful grading of the berries after they are picked and the restricting of picking time from the beginning of the season up to the first of August. It is interesting to note that this industry brings in about one-half million dollars annually to northeastern Pennsylvania.

The Tomato Pin Worm. As the result of finding the tomato pin worm (*Gnorimoschema lycopersicella* Busk) in a greenhouse in the eastern part of Pennsylvania in 1931 and its re-occurrence in September, 1933, a survey was made in 1933 in the eastern part of the State and in Lawrence and Erie Counties where tomatoes are grown under glass to a considerable extent. This survey showed that more than half of the tomato greenhouses in Chester and Delaware Counties were infested. The time of the survey was rather late in the fall, some frosts having occurred, making the field-grown tomatoes difficult to inspect. However, in many instances pin worm was found in the field

crop. In Lawrence County three widely separated houses were found to be infested. In two instances the growers not only run a greenhouse business but also supply vegetables throughout the year to a trade route. When tomatoes are not available in the owner's greenhouse they are purchased on the market from stock shipped in to the Pittsburgh and Youngstown markets. It was not possible to definitely determine the exact source of the tomatoes which were bought on these two markets, but in each case the growers stated that the tomatoes were from California.

Insecticide Investigations

Field and greenhouse tests were made of various insecticides offered for registration at the Bureau of Foods and Chemistry. Also, in conjunction with seed work, a survey was made of all such material offered by dealers throughout the State. Registration was refused in several instances where the material was either ineffective for the purpose intended or caused definite injury to plants treated. Numerous inquiries are cared for in connection with this work. Timely warnings are also sent out cautioning the public against the use of insecticides and fungicides which have not definitely proven their worth.

Apiary Inspection

Due to the reduced funds available for this work, only seven deputy inspectors were employed in 1933 as compared to fourteen for the preceeding year. The average number of colonies inspected per inspector was slightly higher than in any previous year. All apiaries in which disease was found in the season of 1932 and which were not cleaned up by the inspectors were reinspected in 1933 and the diseased colonies destroyed. Less than one percent of disease was found on the second inspection. Follow-up inspection of all apiaries inspected in 1932 which contained illegal hives, and where the work of transferring or destroying was not reported as being completed, was conducted in fifteen counties. Two prosecutions were necessary in connection with illegal hive follow-up work. One paid a fine of \$10.00 and the other was committed to jail.

The regular fall follow-up inspection of apiaries where initial (1933) inspection disclosed diseased colonies and were not reported as being cleaned up was completed without any prosecutions. Many samples of brood comb were received and examined microscopically for the presence of disease and other pests. American foulbrood, sac brood, European foulbrood, nosema disease and two species of wax moth were identified from the material received.

Apiary Inspection Work, 1929-1933

	1929	1930	1931	1932	1933
Number apiaries inspected	4,412	7,187	7,397	8,486	3,964
Number hives in average apiary	8.5	6.7	6.4	6.5	7.3
Number colonies inspected	28,112	48,246	47,587	53,548	29,155
Percent of colonies diseased ..	16	9.9	6.8	9.8	7
Percent in unlawful hives	32	19.4	19.3	15	13
Colonies burned .....	.....	537	2,163	4,130	1,051
Prosecutions	106	84	15	0	2
Applications for license for selling queens	12	8	6	8	8
Licensed queen apiaries	6	6	5	7	6

PATHOLOGY

Except for certain changes in the potato wart quarantine and the inauguration of a program of wart eradication started in 1933, the major projects in plant disease control have been continued on practically the same basis as during the preceding biennium.

Potato Wart

The potato wart disease has now been with us as a problem for fifteen seasons. During this time no known infections have occurred as a result of spread from the quarantine area. In addition, from an economic standpoint, it is a proven fact (though not agreed to by some growers) that in the restricted areas the use of a good quality seed (wart immune) has increased yields and produced a better grade of potatoes.

The Quarantine. The policy of the quarantine from the start until 1931 remained the same, i. e., control of potato culture, use of immune varieties and prohibiting the movement of anything from the warted areas which might spread the disease. In 1931 we decided to modify the restrictions in certain small isolated sections within the quarantine areas, which were strictly agricultural in nature and wherein no wart had been found, by permitting the planting of any desired potato variety, but providing for inspection of the harvested crop and limiting the movement of the potatoes produced.

Studies in soil sterilization renewed in 1930, had proven so promising by 1932 that it was decided to attempt practical soil sterilization on certain warted gardens in isolated villages of the western wart area. These selected villages will be permitted to grow susceptible varieties under supervision and inspection of the harvested crop until the effect of the treatment can be definitely proven. Therefore, it can be said that the potato wart quarantine has now entered upon a definite stage of elimination of wart-infected gardens in the outlying towns and villages with the hope that such areas can be gradually relieved of quarantine restrictions. In the meantime and until we are satisfied that wart has been eliminated, these areas will continue under supervision.

Longevity Tests in Gardens. In 1933, two gardens originally infected with wart, but in which no potatoes had been grown for at least thirteen years, were partially planted to susceptible potatoes. One of these developed a small percent of wart but the other remained free.

Soil Temperature Studies. Studies of the influence of temperature on the activity of wart, started in 1932, showed the optimum for infection to be 60° F. or even lower. A decided retardation occurred at 69° F., and inhibition at points above 70° F. In comparison with this it is of interest to note that soil temperature records secured at Harrisburg and Willow Grove averaged well above 70° F. from June 16, 1933 to the end of the growing season, while at Hazleton the average was 58° F. and at Ebensburg 62° F.

Soil Sterilization. The projects undertaken were: (a) Experiments with various chemicals of varying amounts under controlled conditions; (b) Actual wart extermination using an infected garden.

(a) Twenty plots were treated and tested for wart reaction in 1932. Plots one to ten were treated with different mercury compounds but their cost eliminated them. Plots thirteen to sixteen treated with ammonium sulfo cyanate (various amounts per acre) showed promise. This was likewise true of sodium arsenite-plots seventeen to twenty—and they (plots 13-20) were held over to be retested in 1933. Plots *one to ten* were reinoculated with three hundred pounds of heavily wart infected soil in October 1932, and were retreated in May 1933 with various amounts of ammonium sulfo cyanate (liquid and crystal) and carbon disulphide emulsion.

(b) The warted garden chosen for this experiment (1933) is located at Newtown, Pennsylvania, a small patch town adjoining Osceola Mills. Wart was found in this garden during the survey of 1920. From that date until 1933, no susceptible potatoes were grown in the garden but tomato culture was practiced. Treatment at the rate of 2,000 pounds per acre of ammonium sulfo cyanate was applied April 10. The plot was planted June 29 (eighty days after treatment) with susceptible “russet rurals.”

Germination was delayed perhaps ten days but when once started, the plants developed rapidly and by October 1 the vine growth was above that usually witnessed in garden culture. The potatoes were harvested October 16, each row being dug separately and each plant, its buds, stolens and tubers minutely examined for wart. No wart was found.

The soil and climatic conditions from August 15 to October 15 were ideal for wart development and could in no way have prevented its development if infection were present. The plot, though harvested green, produced seventeen bushels of excellent tubers or at the rate of 486 bushels per acre.

Peach Yellows

Annual inspection of commercial peach orchards for yellows disease had been conducted in all our important peach growing counties from 1921 when 4.45 percent of disease was found to 1931 when the percentage of disease had been reduced to less than .1 percent. Beginning in 1932, the program was changed from an annual to a biennial basis and while there has been a slight tendency for the disease to increase, we are hopeful it can be kept under control through this revised plan.

Peach Yellows Inspection, 1921-1934

Year	Counties Inspected	Number Trees Inspected	Orchards Inspected	Trees Marked for Yellows	Percent Yellows
1921	15	287,466	324	17,376	4.45
1922	14	442,507	422	11,052	2.50
1923	14	482,614	417	10,698	2.21
1924	12	674,012	456	6,064	.89
1925	13	655,493	408	2,326	.35
1926	13	624,743	390	2,524	.40
1927	13	802,033	447	1,846	.23
1928	19	922,540	533	1,317	.14
1929	25	1,030,165	661	1,570	.15
1930	19	900,252	536	703	.078
1931	18	755,440	382	752	.099
1932	12	407,454	334	535	.131
1933	13	428,756	269	581	.135
1934	13	514,279	311	421	.081

Seed Potato Certification

More potatoes were certified in Pennsylvania for seed purposes this biennium than in any similar period since this work was started in 1921. The substantial growth of the work would seem to indicate that local potato growers are beginning to recognize Pennsylvania as a reliable source of seed. This growth has been entirely voluntary on the part of the grower. While occasionally during the earlier years there was more seed available than the demand appeared to call for, as a whole it has proven to be profitable to the seed grower as well as the seed buyer, which summed up in its entirety has contributed to the general improvement of the potato industry in the State.

Potato growers in general have found it profitable during recent years to use seed certified within their own counties or within the State. Pennsylvania certified in most cases is sold by the producer directly to the potato grower, thus eliminating commission charges. Most of this seed is also trucked away from the grower's storage directly to the buyer's farm, thereby avoiding delay in shipment and holding transportation charges to a minimum. When seed is bought outside of Pennsylvania the freight charges in recent years have frequently added from twenty to forty percent to the cost of the seed. This is a worthwhile item to the grower on a order for a carload or when figured over a period of years on even smaller quantities.

Seed Potato Certification, 1929-1933

	1929	1930	1931	1932	1933
Growers entered ..	84	63	67	91	82
Growers passed ..	49	37	44	56	58
Acres entered	433	359	480.5	599.5	687.25
Acres certified	281.5	221.5	288	369	424.25
Bushels per acre ..	247.8	207.7	316.3	279.8	323.3
Bushels certified ..	69,760	46,016	91,113	103,247	137,165

Certification of Bramble Plants

At the urgent request of berry growers and in cooperation with agricultural extension workers and inspection officials in adjoining States, the Bureau revised its regulations on inspection of bramble plants in 1931. As a means of checking diseases which had become very serious, more stringent requirements were placed on Pennsylvania plant growers and provision was made for closer check on plants shipped in from adjoining States. When first adopted, many growers felt that our revised regulations were too severe but experience has shown that it is not so difficult to meet these regulations as was at first anticipated. While only 31 out of the 81 growers entered, or 38.2 percent were certified in 1931, a total of 69 out of 101 or 68.3 percent passed certification in 1933.

Tomato Seed Certification

Tomato seed certified in this State is produced in accordance with regulations compiled by the Department (1930) in cooperation with the extension workers of the Pennsylvania State College. While some of this seed is sold to growers within the State most of it goes to Florida and other southern States for production of plants to be

shipped back north. Pennsylvania certified seed has also been sent to Cuba, Europe, Africa and South America during the past several years. A fee is charged for this service.

Tomato Seed Certification, 1930-1933

	1930	1931	1932	1933
Acres entered	211.0	138.0	108.0	291.5
Acres rejected	155.5	36.5	7.5	41.75
Acres certified	55.5	101.5	100.5	249.75
Pounds certified	2,500	3,934	8,095	10,897

The varieties and number of pounds of seed of each certified in 1933 were: Marglobe, 8,646; Pritchard, 1,058; Norton, 432; Globe, 225; Red Rock, 214; Stone, 214 and Break O'Day, 108.

Cedar Apple Rust

Cedar eradication as the only effective control for this disease was continued in several of our commercial apple districts. Compensation for cedars destroyed was discontinued June 1, 1933 due to failure of the Legislature to provide funds. However, a recheck of all projects undertaken in recent years was made possible by a grant of CWA funds in the fall of 1933. Cedar trees destroyed during this recheck were not compensated for by the State, since compensation had been made for the original clean-up.

Cedar Apple Rust Control, 1932-1933

	No. of Cedar Owners	No. of Apple Trees Protected	No. of Cedars Removed	Compensation Paid to Cedar Owners
1932	48	9,737	42,228	\$1,315.31
1933	39	13,900	9,499	216.01

Dutch Elm Disease

Following reports from the Federal Department of Agriculture that this destructive (foreign) disease of the elm had been found in New Jersey and New York, all of our nursery inspectors and other workers were instructed to make a close check of elm trees in their districts. Park commissions throughout the State were also contacted and asked to report any symptoms of the disease. In addition, the Federal Department sent several inspectors into the State to cover the most likely sections. Fortunately, to date (May 1934) no trace of the disease has been found in Pennsylvania.

NURSERY INSPECTION

Pennsylvania nurseries are inspected annually as required by the Act of Assembly approved March 10, 1927. This act is the outcome of a desire for protection from new and little known pests as requested by the nursery and horticultural interests, and as originally provided for by the General Assembly in 1901. The development of the horticultural industry and attendant movement of plants from one state to another, as well as between nations, emphasized the need of an in-

spection service to prevent the spread of these pests, as well as many of our more common pests, into uninfested areas. This protection of the extensive fruit and ornamental plant industry now constitutes a valuable service of the Pennsylvania Department of Agriculture.

Number and Size of Nurseries. The number of nurseries in Pennsylvania has steadily increased since the first inspection in 1901, the year 1933 showing the addition of eighty new firms and an increase in acreage of more than a thousand acres as compared with 1932. This acreage increase is largely due to the addition of many new collectors of native shrubs. The following table shows the growth of nursery inspection in Pennsylvania during the nine years (1925 to 1933):

Inspection and Licensing of Nurseries, Dealers, and Agents, 1925-1933

	1925	1927	1929	1931	1933
Resident nurseymen	318	400	478	563	763
Acreage	4,360	4,869	7,078	8,606	9,970
Resident dealers	124	116	146	149	209
Non-resident nurseymen	625	384	325	323	315
Non-resident dealers	7	13	16	13	19
No. of inspections	682	932	1,745	1,946	3,228
Agents licensed	2,880	4,012	4,087	4,001	3,325
Interstate shipments	2	3	....	....	14
Special shipping certificates .....	....	37	86	84	101
Certificates refused	4	8	37	26	17
Violations checked	3	....	....	2	2
Imported plants	*878,942	599,364	225,575	163,734	286,470
Number of imported shipments ..	....	....	....	....	52
Number of special inspections ..	....	....	....	52	60
Special certificates .....	....	....	....	11	89
Duplicates issued .....	....	....	....	....	353

* These records are for calendar year; others for nursery year Oct. 1—Sept. 30.

Narcissus Inspection. Federal Quarantine No. 62 prohibits the interstate shipment of narcissus bulbs unless inspected and found to be free of bulb nematodes and the greater bulb fly. Our nursery inspection service covers this work in cooperation with the United States Department of Agriculture, and in 1933 inspected and certified some 895,000 bulbs. Where bulbs are found infested, specified treatment must be given under direct supervision of the inspector. The infestation of greater bulb fly found in 1932 on the premises of a large grower is being treated in accordance with instructions and present results indicate a satisfactory elimination of the pest.

Special Certificates and Permits. The demand for inspection of itinerant shipments, greenhouse plants and other plant materials entering interstate trade has required considerable attention during 1932 and 1933. There were issued 250 special certificates and permits to persons moving living plant materials from one point to another within the State (principally through the mails); to persons shipping plants to foreign countries requiring shipping point inspection; and to persons shipping plant materials not classified as nursery stock in Pennsylvania but considered as nursery stock in the consignee's State. There were sixty-nine certificates issued to growers of bramble plants in conformity to the special regulations of an inspection by the pathol-

ogist. The certification of greenhouse plants for interstate trade fell off somewhat during 1933 due possibly to unfavorable trade conditions, while certification of native plants has increased an equal amount.

Inspection of Imported Nursery Stock. The amount of nursery stock imported during 1933 decreased appreciably but not as much as the gain made in 1932. The stock in 1933 was especially well prepared and free from insect pests. Of the fifty-two shipments, only two were found to be affected by pests and these were of a minor nature.

BOTANY AND SEED WORK

The amount of money spent annually by the farmers of Pennsylvania for the seed used in growing seven of the leading crops is approximately \$6,000,000, and the value of these crops (1933) is approximately \$90,000,000. It is impossible to estimate the loss sustained in the use of a cheap grade of seed which may be low in germination and polluted with noxious weed seed. If the crop yield was reduced ten percent, which indeed it may be, the loss would be approximately \$9,000,000 annually. During the past two years the Bureau has made a special effort to caution farmers against the purchasing and sowing of a cheap grade of seed.

There are more than 2,000 seedsmen in the State whom our inspectors visit annually. Samples are drawn from the seeds offered for sale. In the laboratory these samples are analyzed for purity and tested for germination by trained seed analysts. A report of this work is published annually and sent to the seed dealers of the State, as well as to farmers and others who are interested. During the current biennium the seed laboratory has examined approximately 4,700 samples of seeds collected and received from seed dealers and others in the State. The following table summarizes the work of the laboratory for the period 1925 to 1933:

Analysis of Seed Samples, 1925-1933

Type of Sample	1925	1927	1929	1931	1933
"A" Official samples collected from seedsmen	250	544	1,283	1,574	1,676
"B" Unofficial samples sent in by farmers and seed dealers ..	229	189	321	386	370
"C" Special analyses for State agencies	98	115	124	74	111
Total samples	577	848	1,728	2,034	2,157

The Bureau is constantly being called upon chiefly in conjunction with seed regulation to help solve weed problems. Likewise, many farmers who lose livestock by the eating of poisonous plants call upon the Bureau to help solve some of these problems. Plants suspected of poisoning livestock are sent in for identification, and requests for the examination of pastures for such plants are also received and cared for insofar as facilities will permit.

In addition to the seed, weed and poisonous plant work, our botany division is called upon to help in solving many questions that pertain to plants in general. This general work includes the identification of numerous cultivated and wild plants sent in by citizens of Pennsyl-

vania. These are numbered by the hundred per month through the growing season and even a goodly number through the winter. A working herbarium of seeds and one of mounted plants, the former containing approximately 1,500 samples of seeds and the latter about 20,000 sheets of mounted plants, is maintained by this division. These herbaria are essential in making comparisons in the identification and analysis of seeds and plants, and are used in general as a library would be used in a professional way.

While the Department is not authorized to enforce the Canada Thistle and Chicory Weed Act, nevertheless many inquiries are received concerning the enforcement of this law. The Bureau, therefore, gives advice and assistance when requested to local officers who are authorized to enforce this law, and to citizens of the State generally who seek information on this phase of weed control.

DIVISION OF CROP REPORTING AND INFORMATION

George F. Johnson, *Chief*

N. B. Critchfield, said in 1912 after nine years service as Secretary of Agriculture: "A statistical division would greatly increase the efficiency of this Department. Inquiries concerning the character and quality of farm products and general information relating to the agriculture of the State, which can be secured only by the collection and collation of facts relating thereto, are constantly coming to the Department which makes the establishment of a Bureau of Statistics a matter of necessity." At that time the Pennsylvania Department of Agriculture had no statistics available on a county basis. The only estimates of crop and livestock production were taken from the United States Crop Reporter and carried only statewide totals and averages. These obviously met only a small fraction of the actual demand for information because, at the present time, more than 90 percent of the Division's statistical inquiries ask for figures covering specific counties or districts of the Commonwealth. Statewide totals are of relatively small importance. In fact, there has been considerable recent demand for agricultural statistics on even a township basis. Acting upon the recommendation of Secretary Critchfield, the 1913 General Assembly provided for the establishment of the statistical work.

Work Increases Fivefold

The work being done now by the Division is approximately five times as great as that done in 1913-1915. Inquiries direct from citizens of Pennsylvania for specific agricultural information are now being handled by the Division at the rate of 5,000 a year compared to 1,000 to 1,500 annually during the prewar period. When first organized, the Division issued only representative figures giving the condition of crops and prices paid for them, as well as livestock, as reported by selected farmers. No county estimates on crop production and acreage or livestock numbers were attempted.

Today the Division, in cooperation with the Bureau of Agricultural Economics in Washington, and over 10,000 crop reporters issues not only annual reports giving complete agricultural statistics on all crops, on all livestock and poultry, on the annual purchases of fertilizer and

lime, and on modern equipment of various kinds on farms, but also issues monthly reports on crop conditions, prospective yields and on prices. Special timely reports are issued on intentions-to-plant, the agricultural outlook, the farm real estate situation, labor supply and demand and wages paid, the hatchery business, maple products, stocks of grain on farms and in elevators, the pig crop, the dairy situation, and detailed releases during the growing season on crops such as potatoes, fruits, grapes and tobacco, giving important facts on production, quality, etc., in Pennsylvania and competing areas.

Special data on farm labor supply and demand has been collected monthly and transmitted to the Department of Labor and Industry for their unemployment survey. All the available statistics of farm abandonment have been requested at different times during the period covered by this report, by representatives of the Department of Forests and Waters and by members of the General Assembly. Special statistics are frequently requested by different farm credit agencies to support the farmers' demand for more liberal credit.

Useful Reports Published

The annual "Crop and Livestock Report," giving county statistics relating to the principal farm crops, fruit, livestock, livestock products, and much information incident to agriculture for both 1932 and 1933, were compiled and published promptly. As a measure of economy, this publication was cut in size from 64 to 32 pages, and a new printing process used, so that in all, the cost as well as the time required for printing has been reduced more than 75 percent.

The Division issues each year a publication entitled "Directory of Information," which has proven a useful handbook for answering effectively, hundreds of inquiries. The bulletin contains a list of more than eight hundred useful farm bulletins indexed by subjects, a directory of State and County Agricultural Associations with secretaries, and a compilation of National Record Associations with name and address of secretary.

Cost of Publications Cut

This Division, being charged with editing all Department publications, has made a particular effort in cooperation with all the Bureaus and the Executive Office, to effect economies in this service and has been successful in cutting the cost between 50 and 75 percent. A general mailing list, formerly used in the distribution of practically all general bulletins, has been abandoned in favor of specialized mailing lists, each carrying only a limited number of names of persons directly interested in the publication. In addition, a careful record is kept of all individual requests for bulletins. This makes possible the requisitioning of only the number of copies which can be used effectively before the subject matter becomes out of date. A new method of printing in which tabular reports are carefully set-up by typewriter and then reproduced without type setting, has also reduced printing costs.

**Result of Efforts at Economizing in the Cost of Printing
General Bulletins in Department of Agriculture**

Year	Number of Printed Orders for General Bulletins	Number of Copies of Bulletins Printed	Average Size of Order	Number of Printed Pages
1929	18	104,000	5,333	4,607,700
1930	12	67,000	5,500	4,510,000
1931	10	44,000	4,400	2,900,000
1932	7	29,000	4,100	1,098,800
1933	5	13,000	2,600	592,000
1934	7	24,000	3,430	562,000

FINANCIAL STATEMENT

Expenditures During the Period June 1, 1932 to May 31, 1934

	June 1, 1932 to May 31, 1933	June 1, 1933 to May 31, 1934	June 1, 1932 to May 31, 1934
Executive Office:			
General	\$34,028.36	\$32,180.70	\$66,209.06
Crop Reporting and Information	13,303.75	12,173.00	25,476.75
Egg Laying Contest	16,262.77	9,107.10	25,369.87
Bureau of Foods and Chemistry: ..	166,798.33	134,469.12	301,267.45
Bureau of Plant Industry:			
General	126,354.05	137,717.32	264,071.37
Plant Indemnity	216.01	.....	216.01
Bureau of Markets:	54,978.12	43,572.85	98,550.97
Bureau of Animal Industry:			
General	456,943.06	412,817.68	869,760.74
Dog Law Enforcement	194,763.58	116,232.13	310,995.71
Animal Indemnities	1,042,875.36	581,284.22	1,624,159.58
Total	\$2,106,523.39	\$1,479,554.12	\$3,586,077.51

Revenue Created During the Period June 1, 1932 to May 31, 1934

	June 1, 1932 to May 31, 1933	June 1, 1933 to May 31, 1934	June 1, 1932 to May 31, 1934
License Fees	\$1,009,898	\$1,152,200	\$2,162,098
Fines	25,766	29,163	54,929
Refunds	231	971	1,202
Miscellaneous	6,382	6,494	12,876
Total	\$1,042,277*	\$1,188,828*	\$2,231,105*

* Includes Dog Law Enforcement revenue. See page 7 for amount by calendar years.

